The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114-2524

MITT ROMNEY
GOVERNOR
KERRY HEALEY
LIEUTENANT GOVERNOR
ELLEN ROY HERZFELDER
SECRETARY

Tel. (617) 626-1000
Fax. (617) 626-1181
http://www.mass.gov/envir

May 9, 2005

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME	: Sconset Beach Nourishment Project
PROJECT MUNICIPALITY	: Siasconset, Nantucket
PROJECT WATERSHED	: Cape & Islands
EOEA NUMBER	: 13468
PROJECT PROPONENT	: Siasconset Beach Preservation Fund
DATE NOTICED IN MONITOR	: March 9, 2005

Pursuant to the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62H) and Section 11.03 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **requires** the preparation of an Environmental Impact Report (EIR).

Project Description

As described in the Environmental Notification Form (ENF), the purpose of the proposed project is to stabilize an approximately two-mile long eroding shoreline on Nantucket, from the town sewer beds south of Codfish Park to the Sankaty lighthouse. This is proposed to be accomplished by placing between 1.6 and 2.4 million cubic yards of sand as beach nourishment, installing Geotubes at the toe of the eroding bank, and constructing "sand gates," which are wooden, fence-like structures, perpendicularly to the shoreline throughout the nourishment footprint. The proponents have proposed obtaining the material necessary for the nourishment by dredging sand from two offshore borrow sites located approximately three miles east of Nantucket island in state and federal waters. Additional volumes of sand will periodically be dredged from this or nearby shoals for supplemental fill activities as needed. The sand will be hydraulically pumped onto a 46-acre area of beach to create a berm approximately 200 - 250 feet wide to a depth of 10 feet prior to spreading. The exact location of the proposed offshore mining site has not yet been determined.

Purpose of MEPA Review

This project highlights the importance of reconciling in state regulatory actions the equally significant interests of contemporary shore protection policy and the protection of marine habitat and fisheries resources. State coastal hazards policy advocates non-structural approaches to coastal hazards reduction, as opposed to structural, or 'hard' solutions like seawalls and revetments, which interfere with natural coastal processes. I believe that non-structural shore protection alternatives, such as the beach nourishment proposed here, can enhance the natural landform's ability to provide storm damage protection to structures and landward areas while minimizing the collateral impacts to adjacent shorelines associated with hard structures. However, I also recognize the potential impacts associated with large-scale marine sand mining, as proposed here, to marine habitat, fisheries, and commercial and recreational fishing interests. I am also mindful that we are gaining knowledge of the complexity and significance of the marine ecosystem, including, fundamentally, habitats and the natural and human uses they support. As a coastal state with many hundreds of miles of developed sandy shoreline we will be down this path many times to come: the gradual effects of sea level rise will increasingly subject coastal properties to storm damage, while the close proximity and abundance of marine sand resources make it an appealing alternative to property owners.

For this project, key elements of the EIR will be the alternatives analysis (an assessment of the permittable alternatives that will determine the alternative that best meets project objectives while avoiding and minimizing damage to the environment) and fisheries impacts analyses (which will characterize the habitat and fishery resource as the basis for a determination of potential impacts). To facilitate the review and permitting of this project, and consistent with my broader ocean and coastal management objectives, I ask that the Department of Environmental Protection, Division of Marine Fisheries and Coastal Zone Management coordinate in the development of working guidelines to assist the proponent in determining the extent of resource analysis necessary to characterize potentially affected resources and evaluate potential impacts under the controlling regulations. I also ask that the agencies provide guidance to the proponent regarding the range of alternatives, responsive to both state shoreline protection policy and fishery resource protection, to be evaluated.

MEPA imposes a requirement on project proponents to understand and fully disclose the potential impacts of a project, both positive and negative; to study feasible alternatives to a project; and to avoid, reduce, or mitigate environmental impacts to the maximum extent feasible. The proponent should prepare the EIR in accordance with the general guidance for outline and content contained in Section 11.07 of the MEPA regulations as modified by this Certificate.

JURISDICTION AND PROCESS

Required Permits and MEPA Jurisdiction

The project is undergoing review pursuant to Sections 11.03(3)(b)3, 11.03(3)(b)4, and 11.03(3)(a)1.b of the MEPA regulations, because the project involves the dredging of 10,000 or more cy of material, disposal of 10,000 or more cy of material and alteration of ten or more acres of any other wetland. The project will require a 401 Water Quality Certificate and a Chapter 91 License from the Department of Environmental Protection (DEP); and an Order of Conditions from the Nantucket Conservation Commissions (and hence Superseding Order from DEP if the Order is appealed). In addition, the Massachusetts Coastal Zone Management Office (CZM) will conduct Federal Consistency Review of the project, including the portions of the project located in federal waters. The project will require a Section 10/404 permit from the United States Army Corps of Engineers and a potential review and leasing of the borrow site in Federal water by the Minerals Management Service.

Because the proponent is not seeking financial assistance from the Commonwealth for the project, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required state permits and that have the potential to cause significant Damage to the Environment. In this case, given the broad scope of the Chapter 91 permit, MEPA jurisdiction effectively extends to all aspects of the project that are within Massachusetts.

CZM has broad jurisdiction because federal law (pursuant to the Coastal Zone Management Act) specifically delegates review authority over projects in federal waters to the Coastal Zone Management Office of the adjacent coastal state, provided that the state has a federally approved Coastal Zone Management Plan.

SCOPE

Project Description and Regulatory Environment

The Draft EIR (DEIR) should include a detailed description of the project, and should briefly describe each state agency action required for the project. The DEIR should demonstrate how the project is consistent with any applicable performance standards. The DEIR should contain sufficient information to allow the permitting agencies to understand the environmental consequences of their official actions related to the project.

Comments

The DEIR should respond fully to the substantive comments received. The DEIR should present additional technical analysis and/or narrative as necessary to respond to the concerns raised, not otherwise raised in this Certificate. The proponent should circulate the EIR to those who submitted written comments on the ENF, and to any state agencies from which the proponent will seek permits or approvals. The DEIR should contain a copy of this Certificate and of each comment received.

Alternatives

At the heart of the MEPA process stands the requirement to evaluate feasible alternatives to a proposed project, to ensure that all state agencies can find, pursuant to Section 61 of the statute, that all feasible means to avoid, reduce, or mitigate environmental damage have been considered and incorporated into the project design.

The EIR should analyze the proponent's preferred alternative, and the no-build alternative to establish baseline conditions and any alternatives necessary for CZM to conduct its Consistency Review and to determine coastal dependency. I recommend that the proponent consult with CZM to determine the range of alternatives necessary.

The EIR should also include any alternatives analysis required by the 401 Water Quality Certification process, and any other alternatives analysis required for state permitting purposes.

Permitting and Planning Consistency

The EIR should include a brief discussion of each state permit or agency action required for the project. The EIR should demonstrate that the project could meet any applicable performance standards.

Coordinated Review

I strongly recommend that this review be coordinated with the Federal process in the event an Environmental Assessment (EA) and Environmental Impact Statement (EIS) are required. If the review is coordinated, the DEIR should outline the coordination plan. If the review is not coordinated, the DEIR should describe how the proponent will address the Federal process in the future.

Beach Nourishment

As I stated previously a complete understanding of the nature of the sediment transport system and wave climate is critical to the design of an effective beach nourishment program and the evaluation of potential impacts associated with the proposed geotubes.

The DEIR should contain:

- Quantification of the direction(s) and approximate magnitude(s) of net sediment transport in the project area, both cross-shore (from the beach face to the shoals) and alongshore.
- Quantification of the direction and magnitude of tidal currents, using data collected from the project site, supplemented with the results from related historic beach profile monitoring programs and studies, and other available data (e.g. wind and WIS wave

data).

- Plan and profile views of the nourishment footprint.
- A detailed grain size analysis, overfill calculations, and a description of the design criteria based on contemporary principles of coastal engineering available through the U.S. Army Corps of Engineer's Coastal Engineering Manual and Beach Fill Manual.
- A discussion of construction methods and schedule, and the life expectancy of the nourishment.
- Identification of re-nourishment and maintenance "triggers".

Sand Gates

If sand gates are intended to be included in the preferred alternative, the DEIR should include a discussion of the proposed "sand gates" including design parameters, proposed locations, a monitoring and maintenance plan to minimize adverse impacts to coastal processes and adjacent landforms, information regarding their use at other locations, and any associated monitoring reports.

The proponents will need to provide additional information relative to the proposed use of sand gates. The DEIR should detail how many and where are the sand gates proposed to be constructed and in what location(s) the sand gates have been previously used. The DEIR should also describe how frequently will the sand gates be monitored for impacts to the downdrift shoreline?

Geotubes

DEP has traditionally considered Geotubes to be coastal engineering structures for the purposes of review in accordance with the provisions of the Coastal Wetlands regulations (310 CMR 10.21 – 10.37). Since coastal engineering structures are prohibited under Nantucket's local wetlands bylaw I recommend strongly that the proponents consult with DEP and the Nantucket Conservation Commission, prior to the preparation to of the DEIR, to ensure that the use of geotubes is a permittable activity. Should the use of geotubes remain a component of this shoreline stabilization project, the DEIR should document that the interference of these structures with sediment transport will be minimized, in accordance with Coastal Hazard Policy #2.

The DEIR needs to address the concerns relative to potential wave interactions, including scour as a result of wave reflection, with the proposed Geotube. For example, what will re-nourishment be triggered upon exposure of the Geotube? If re-nourishment is unsuccessful in terms of keeping the Geotube covered with sediment, when will the Geotube be removed or abandoned? Is the Geotube proposed along the entire project area, including stretches of existing coastal dune?

The DEIR should also contain the following information: a plan identifying all structures (e.g. houses, etc.) constructed on coastal banks (without fronting coastal dunes), after 1978; a

discussion of the proposed monitoring program, including re-nourishment "triggers", to ensure that geotubes remain covered and that end effect erosion is minimized; a discussion of the source of sand that will be used to fill the geotubes, the proposed construction methodology and schedule, and for the proposed adverse monitoring and mitigation program; a detailed analysis of a nourishment-only alternative that that evaluates the storm damage prevention effectiveness of a vegetated sacrificial dune constructed along the base of the bank for the length of the project in place of the geotubes.

Beach Dewatering

The proponents have indicated verbally that they plan to continue use of the beach dewatering system in conjunction with the proposed beach nourishment. Therefore, the DEIR should include details regarding the proposed continued use, upgrade, or removal of the beach dewatering system components currently installed in the project area.

Coastal Bank Terracing

The proponents have used a combination of Duneguard fencing, coconut fiber logs, compatible fill, and vegetation to create terraces on the coastal bank as a method of controlling erosion of the coastal bank. The DEIR should include information regarding the proposed maintenance of existing terraces, expansion of the terracing efforts to other areas of the coastal bank, as well as plans for maintenance of the Duneguard fencing that has been used at this site.

Sediment Source

The volume of material needed to achieve nourishments objectives will require dredging of a significant area, therefore the DEIR should provide an alternatives analysis that includes a review of other sand mining sites and identifies other potential sources of nourishment material that would minimize impacts to marine resources. Specifically, this analysis should identify a range of possible sediment sources (upland and offshore), develop and describe a set of screening criteria for alternative sites, and discuss viable alternatives before proceeding with a detailed site analysis of the potential impacts.

The DEIR should address the environmental impacts of the sand mining from a regional perspective, i.e., cumulative impacts, for both the initial project and, to the extent possible, the additional dredging that will be required to renourish the beach. The DEIR should also examine the alternative of barging sand from an off-island source and pumping it directly to the beach should be carried forward in the as an alternative DEIR.

The DEIR will need to demonstrate that the borrow area contains sediment of a grain size compatible with the existing beach sediments and that a sufficient quantity of sand is available for project needs. The DEIR should provide the grain size analyses of the material available from potential

"borrow" site(s). The DEIR should also provide estimates of the quantity of material available for mining from potential "borrow" site(s) in the context of the volume required to maintain the desired level of shore protection.

The DEIR will need to demonstrate that the offshore sand mining will not have an adverse effect on the shoreline by altering wave transformation over the borrow area leading to wave focusing or by altering wave energy distribution and sediment transport patterns along the shoreline. Specifically, the DEIR should address the effect of proposed dredging on the wave climate at the adjacent shoreline(s) and the ability of the adjacent shoals to protect the Nantucket shoreline from wave energy and to provide sediment to the littoral system. A characterization of changes to wave heights within and landward of the "borrow" area(s) during 1, 10, 20, 50 and 100-year storms (as well as during "normal" conditions) should also be explained.

The DEIR will need to describe potential impacts of the offshore borrow area(s). This will include: a resource characterization of each potential borrow site, and analysis of potential impacts from sand mining to the benthic habitat, the water column, fisheries, invertebrates, or other biologic resources; identification of a reference site to be monitored and used for comparative purposes to identify and assess sand mining impacts to the borrow site(s); characterization of current commercial and recreational uses in the area of the borrow site(s), including fishing and boating, and an analysis of potential short and long term conflicts with those activities, together with any proposed mitigation.

I recommend that the proponents consult with the Minerals Management Service and U.S. Army Corps of Engineers regarding recent studies of the impacts of offshore sand mining that could be used as models to establish monitoring and mitigation plans. The proponent should also consider opportunities to use compatible sediment from navigational dredging projects should be explored. It is unlikely that sediment from navigational dredging projects could be used exclusively. However, material from such sources may help reduce the total volume of sand to be mined for the initial and subsequent maintenance projects.

Fisheries Resources, Benthic Species, and Habitat Characterizations

Nantucket Shoals provide important feeding, spawning, and/or nursery grounds for many species of finfish and invertebrates, including bluefish (*Pomatomas saltatrix*), striped bass (*Morone saxatilis*), scup (*Stenotomus chrysops*), summer flounder (*Paralichthys dentatus*), black sea bass (*Centropristis striata*), Atlantic cod (*Gadus morhua*), squid (*Loligo pealei*), channeled whelk (*Busycon carica*), and surf clams (*Spisula solidissima*). Often considered to be lacking in habitat value, the sand waves and ridges that form on Nantucket Shoals provide refuge and shelter, particularly for juvenile life stages, and the alteration or loss of these habitats can markedly affect fish development and behavior. In addition, such perturbations often impact forage success for other fishery resources in the area.

Alteration and removal of these shoals may also significantly impact the commercial and recreational harvest of fish and invertebrates from these shoals. Fisheries of particular concern include commercial surf clam harvest (surf clams are found in great abundance and regularly harvested in this area) and recreational (private and charter boats) fishing for species such as striped bass.

The DEIR should include the information on directed resource surveys of sufficient spatial and temporal scale to characterize the marine resources inhabiting (permanent and transient occupation) the preferred and alternative project mining as well as their habitat functions and values. The DEIR should also characterize the resource and habitat sufficiently of these areas by all life stages of relevant commercial and recreationally important species, as well as those species that provide ecological services such as forage. The data from these directed studies should be integrated with existing data sets, landings data, and physical/oceanographic characteristics to produce an accurate characterization of the diversity and abundance of finfish resources on Nantucket Shoals and Siasconset Beach. The design and analysis of the studies should be coordinated with the appropriate State and Federal resource agencies.

The DEIR should also include an assessment of impacts on fisheries (both commercial and recreational), with particular focus on potential impacts to fisheries habitat. This should include directed studies of commercial and recreational (private and charter boats) fishing activity if the preferred and alternative project areas are required to evaluate potential impacts resulting from the construction and operation of this facility. Studies of fishing activity should also be developed in concert with *MarineFisheries* and NMFS to quantify effort (magnitude and technique) and landings by area and season within the areas of interest, as well as the economic contribution these activities make to the local economy. Landings data reported by *MarineFisheries* and NMFS must be integrated into a unified format to allow comprehensive analysis of these data by species as well as gear type used in Nantucket Sound. The reporting of these data must include meaningful discussion of the limitations implicit in these data sets.

Comprehensive Environmental Monitoring Program

The DEIR should include a detailed description of a monitoring program that is designed to accurately measure and analyze potential adverse impacts to coastal resource areas, marine life and rare species resulting from the proposed project, including possible modifications to the program(s) currently in place the ongoing beach dewatering and shore protection activities.

The DEIR should also contain description of a post-construction monitoring program. This should include monitoring of the borrow areas. The borrow area monitoring program, which should be presented in detail in the DEIR, should include "control sites," i.e., areas similar to those to be dredged but that will remain unaffected by the dredging. By comparing the results of sampling/surveys of areas within the dredge footprint to those in the outside of, but similar to, the dredged areas (the control sites), the degree of success of benthic habitat recovery can be

evaluated. Annual monitoring should continue until the habitat has "recovered." The criteria for defining "recovery" should also be included in the DEIR. Such information will be vital when additional dredging is proposed to maintain the beach nourishment project.

The DEIR should contain the post-construction monitoring for the nesting of shorebirds throughout the breeding season. Any nesting areas should be posted and monitored according to state guidelines for tern and plover management.

Physical Characterization/Model

The DEIR should conduct directed physical surveys of sufficient spatial and temporal scale to characterize water flow and sediment transport within the preferred and alternative mining and fill sites. The data from these directed studies should be used to model potential changes to water flow and sediment transport that may result from the removal of portions of Nantucket Shoals, both as individual shoal areas and for the greater area as a whole. The magnitude of potential changes to the physical environment of Nantucket Shoals must be evaluated in the context of other proposed sand mining for beach fill projects along the Cape and Islands, as well as with reference to the Cape Wind project, which may alter up to 26 miles of shoals habitat within Nantucket Sound.

The DEIR should describe all permittable shore protection options including structural and non-structural alternatives. Mining and construction plans presented in the DEIR should follow the mandated progression of avoidance, minimization, restoration, and mitigation with regards to environmental impacts. As well as meeting the baseline data needs, the DEIR should contain appropriate plans for post-mining/construction monitoring, restoration efforts, and compensatory mitigation for unavoidable habitat loss and impacts and impacts to fishing. To address requirements to minimize habitat/resource impacts, the proponents need to coordinate with the State and Federal resource agencies to develop appropriate time-of-year restrictions for both the mining and construction activities.

Avian Impacts

The DEIR should include a thorough assessment of impacts to birds. If the proponent prepares a formal risk assessment, any subjective inputs should be clearly identified and appropriate sensitivity analyses included.

Since the Massachusetts Natural Heritage and Endangered Species Program (NHESP) has mapped a significant portion of the coastal beach and dune within the project area as habitat for rare and endangered species (shorebirds), the proponents should coordinate with the NHESP relative to the timing of beach construction, the location of the proposed de-watering site as well as the placement of snow fencing and/or planting of vegetation within existing and potential shorebird habitat.

Land Alteration

The DEIR should clarify and quantify the amount of land disturbed, including land, land under water/salt marsh and uplands/inland wetlands as detailed in the Nantucket Board of Selectmen's comment letter. The DEIR should discuss the resources present in lands proposed for alteration, including benthic resources, archaeological resources, and vegetation.

Wetlands/Drainage

The DEIR should include a more detailed delineation of coastal wetland resource areas, in accordance with 310 CMR 10.21 to 10.37, than provided in Figure-4 of the ENF. The delineation should include all resource areas that may be affected by the project including those within and adjacent to the area(s) of proposed work.

In addition, flood zone boundaries, obtained from the current Flood Insurance Rate Maps (FIRMs) for Nantucket, and depicted on the plans. The digital flood zones obtained from the Q3 maps are not sufficiently detailed enough to be used for site-specific delineations.

Water Quality

The DEIR should address the water quality impacts of the project, including any informational requirements of the Water Quality Certification process.

Chapter 91/Public Trust

The DEIR should include an analysis of the project impacts on lands subject to the Massachusetts Public Trust Doctrine. The document should discuss potential impacts on public access to Chapter 91 lands.

Federal Consistency

As noted above, CZM jurisdiction extends over all aspects of the project. The EIR should address the concerns of CZM, and provide sufficient information to facilitate the federal Consistency Review.

Historic/Archaeological Impacts

Underwater areas of the proponent's preferred project borrow area (and potentially some alternative areas) have high sensitivity for archaeological resources. The EIR should analyze potential impacts on underwater archaeological resources (both shipwrecks and now-submerged prehistoric cultural artifacts). I strongly recommend that the proponent consult with the

Massachusetts Historical Commission and the Massachusetts Board of Underwater Archaeological Resources to develop an appropriate scope for these studies.

Construction Period

A thorough discussion of the proposed construction methodology, schedule, and any related impacts for each of the alternatives, including equipment and machinery access, construction monitoring and maintenance.

Mitigation/Section 61

The DEIR should include a summary of all mitigation measures to which the proponent has committed. The mitigation summary should be sufficiently detailed to form the basis of the Proposed Section 61 Findings to be presented in the Final EIR.

May 9, 2005
Date

Ellen Roy Herzfelder

Comments received:

3/28/05	Massachusetts Historical Commission
3/29/05	Division of Fisheries & Wildlife
4/14/05	Derek Till
4/14/05	Victor T. Mastone, Bd. of Underwater Archaeological Resources
4/18/05	Joshua Posner
4/19/05	Pamela Hendrickson, JPMorgan Private Bank
4/19/05	William B. Holding, Jr.
4/19/05	David Golden
4/19/05	Arthur G. Broll
4/19/05	Joan R. Brecker
4/20/05	Phillip S. Arensberg
4/20/05	David and Dana Boyce
4/20/05	Mrs. Charles Darling
4/22/05	Kyle L. Latshaw and Loretta Yoder
4/22/05	Marlene and William Hegarty
4/22/05	Lawrence C. McQuare
4/23/05	Sheila F. Todd
4/24/05	Robert D. Felch, The Sconset Trust, Conservation/Preservation
4/24/05	Kermit Roosevelt
4/24/05	Frederick Singer

4/24/05	Fred G. and Sarah F. Lamott
4/25/05	Sam Furrow, Furrow Auction Company
4/25/05	Beth A. Singer
4/25/05	W. Dexter Paine, III, Fox Paine
4/25/05	F. Helmut Weymar
4/26/05	Bonnie Harris
4/26/05	William B. and Judith K. Holding
4/26/05	James A. Haslam III
4/26/05	Donald and Mary Moffet
4/26/05	Cormac Collier, Nantucket Land Council, Inc.
4/28/05	Representatie Eric T. Turkington
4/29/05	Senator Robert A. O'Leary
4/29/05	Jeanne Dickinson
4/29/05	C. Elizabeth Gibson, Nantucket Board of Selectmen – County Commissioners
4/29/05	Peter D. Colosi, US Department of Commerce
4/29/05	Mass Audubon
4/29/05	Paul J. Diodati, Division of Marine Fisheries
4/29/05	Coastal Zone Management
4/29/05	Department of Environmental Protection/Boson
5/05/05	Norwood Davis, Jr.
5/09/05	James E. Walker III

ERH/ACC/acc